31

### PATENT COOPERATION TREATY

	From the INTERNATIONAL BUREAU		
PCT	То:		
NOTIFICATION OF THE RECORDING OF A CHANGE  (PCT Rule 92bis.1 and Administrative Instructions, Section 422)  Date of mailing (day/month/year)	VOSSIUS & PARTNER Siebertstrasse 4 81675 Munich Germany		
27 May 2005 (27.05.2005)			
Applicant's or agent's file reference G5466 PCT	IMPORTANT NOTIFICATION		
International application No.	International filing date (day/month/year)		
PCT/EP2004/008964	10 August 2004 (10.08.2004)		
The following indications appeared on record concerning:      X the applicant      X the inventor	the agent the common representative    State of Nationality   State of Residence		
Name and Address	State of Nationality State of Residence		
	Telephone No.		
	Facsimile No.		
	Teleprinter No.		
The International Bureau hereby notifies the applicant that to X the person the name the additional that to the additional that the additiona			
Name and Address	State of Nationality State of Residence		
KARCH, Ralf	DE DE		
KARCH, Half Käthe-Kollwitz-Strasse 24 63801 Kleinostheim Germany			
i 7. (ib. 2005	Facsimile No.		
TEAM 14	Teleprinter No.		
3. Further observations, if necessary:			
4. A copy of this notification has been sent to:			
X the receiving Office	[Y] the designated Officer		
	X the designated Offices concerned		
the International Searching Authority	the elected Offices concerned		
the International Preliminary Examining Authority	other:		
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Patrick VILLECHAISE (Fax 338 8970		
Facsimile No. (41-22) 338.89.70	Telephone No. (41-22) 338 8395		

	From the INTERNATIONAL BUREAU
PCT	То:
NOTIFICATION OF THE RECORDING OF A CHANGE  (PCT Rule 92bis.1 and Administrative Instructions, Section 422)  Date of mailing (day/month/year)	VOSSIUS & PARYMERIUS & Partner Siebertstresse 4 81675 Munich 0 6. Juni 2005 Germany Filet bearb.: smt
27 May 2005 (27.05.2005)	
Applicant's onegent's file reference G5466 PCT	IMPORTANT NOTIFICATION
International application No. PCT/EP2004/008964	International filing date (day/month/year) 10 August 2004 (10.08.2004)
The following indications appeared on record concerning:      X the applicant     X the inventor	the agent the common representative
Name and Address	State of Nationality State of Residence
	Telephone No.
	Facsimile No.
	Teleprinter No.
2. The International Bureau hereby notifies the applicant that the	he following change has been recorded concerning:
X the person the name the add	
Name and Address KARCH, Ralf	State of Nationality State of Residence DE DE
Käthe-Köllwitz-Strasse 24 63801 Kleinostheim Germany	Telephone No.
25,	Facsimile No.
	Téleprinter No.
3. Further observations, if necessary:	
·	
4. A copy of this notification has been sent to:	
X the receiving Office	X the designated Offices concerned
the International Searching Authority	the elected Offices concerned
the International Preliminary Examining Authority	other:
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Patrick VILLECHAISE (Fax 338 897)
Facsimile No., (41-22) 338.89.70	Telephone No. (41-22) 338 8395
Form PCT/IB/306 (March 1994)	006703864

006703862

### PATENT COOPERATION TREATY

	From the INTERNATIONAL BUREAU			
PCT	To:			
NOTIFICATION OF THE RECORDING OF A CHANGE  (PCT Rule 92bis.1 and Administrative Instructions, Section 422)	VOSSIUS & PARTNER Siebertstrasse 4 81675 Munich Germany  Frist bearb.:			
Date of mailing (day/month/year) 27 May 2005 (27.05.2005)	iloado.			
Applicant's or agent's file reference G5466 PCT	IMPORTANT NOTIFICATION			
International application No. PCT/EP2004/008964	International filing date (day/month/year) 10 August 2004 (10.08.2004)			
The following indications appeared on record concerning:      X the applicant  Name and Address	the agent the common representative  State of Nationality State of Residence			
	Telephone No.			
	Facsimile No.			
The International Bureau hereby notifies the applicant that the X the person the name the add				
Name and Address BRIEL, Oliver Tulpenhofstrasse 25 63067 Offenbach	State of Nationality State of Residence DE DE Telephone No.			
Germany	Facsimile No.			
	Teleprinter No.			
3. Further ebservations, if necessary:				
4. A copy of this notification has been sent to:  X the receiving Office the International Searching Authority the International Preliminary Examining Authority	the designated Offices concerned the elected Offices concerned other:			
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Patrick VILLECHAISE (Fax 338 8970			
Facsimile No. (41-22) 338.89.70 Form PCT/IB/306 (March 1994)	Telephone No. (41-22) 338 8395			



Via Telefax - page(s) Fax-No. 089-2399-4465

Vossius & Partner · POB 86 07 67 · 81634 Munich · Germany

**European Patent Office** 

MUNICH

EPO - Munich 59

0 8. März 2006

**FUROPEAN PATENT ATTORNEYS** EUROPEAN TRADEMARK ATTORNEYS

DR. VOLKER VOSSIUS, Dipl.-Chem. (bis 1992; danach in anderer Kanzlei)

DR. PAUL TAUCHNER, Dipl.-Chem.

DR. DIETER HEUNEMANN, Digl.-Phys.

DR. PETER A. RAUH, Dipl.-Chem. DR. GERHARD HERMANN, Dipl.-Phys.

JOSEF SCHMIDT, Dipl.-Ing.

DR. HANS-RAINER JAENICHEN, Dipl.-Biol. DR. ALEXA V. UEXKÜLL, M.Sc.

DR. RUDOLF WEINBERGER, Dipl.-Chem.

AXEL STELLBRINK, Dipl.-Ing.
DR. JOACHIM WACHENFELD, 8iol.

DR. FRIEDERIKE STOLZENBURG, Dipl.-Blot.

RAINER VIXTOR, DIPL-Ing.
DR. NATALIA BERRYMAN, DIPL-Chem.

DR. JÜRGEN MEIER, Dipl.-Biol.

DR. STEFAN FICKERT, Dipl.-Chem

DR. KATHARINA HAAS, Dipt.-Chem.

RECHTSANWÄLTE

HELGA TREMMEL

DR. JOHANN PITZ BARBARA GUGGENMOS, DIPL-Chem.

DR. THURE SCHUBERT SIMONE SCHÄFER

JENNIFER CLAYTON-CHEN

DR. NIELS HÖLDER, LL.M.

#### **EUROPEAN PATENT ATTORNEYS**

DR. RENATE BARTH, Dipl.-Chem

DR. URSULA ENGLBRECHT, Dipl. Chem.

DR. PETER EINMAYR, Dipl.-Chem.

DR. OLAF MALEK, Dipl. Biol.

BASEL OFFICE \*

**EUROPEAN PATENT ATTORNEY** DR. WERNER BASTIAN, Dipl.-Biol.

Confirmation Copy

04 76 3974.5 Umicore AG & Co. KG Our Ref.: G5466 EP

Munich, March 8, 2006 WR/ISS

Reference is made to the telephone conversation between Mr. Marvanne and the undersigned of March 7, 2006:

We herewith enclose a copy of our petition of today to the WIPO requesting two corrected Notifications (Forms PCT/IB/306).

r. Rudolf Weinberger **European Patent Attorney** 

Enclosure:

As mentioned above

www.vossiusandpartner.com



Patentanwälte Rechtsanwälte

Via Telefax - 3 page(s) Fax-No. 0041-22-338 8970

VOSSIUS & PARTNER · POB 86 07 67 · 81634 Munich · Germany

Organisation Mondiale de la Propriété Intellectuelle Attn.: Mr. Patrick Villechaise Case postale 18

1211 Genève 20 SCHWEIZ PATENTANWÄLTE EUROPEAN PATENT ATTORNEYS EUROPEAN TRADEMARK ATTORNEYS

DR. VOLKER VOSSIUS, DIpl.-Chem.
(bis 1992; danach in anderer Kanztei)
DR. PAUL TAUCHNER, Dipl.-Chem.
DR. DIETER HEUNEMANN, Dipl.-Phys.
DR. PETER A. RAUH, Dipl.-Chem.
DR. GERHARD HERMANN, Dipl.-Phys.
JOSEF SCHMIDT, Dipl.-Ing.
DR. HANS-RAINER JAENICHEN, Dipl.-Biol.
DR. ALEKA V. UEXKOLL, M.Sc.
DR. RUDOLF WEINBERGER, DIPL.-Chem.
AXEL STELLBRINK, DIpl.-Ing.
DR. JOACHIM WACHENFELD, Biol.
DR. FRIEDERIKE STOLZENBURG, DIpl.-Biol.
RAINER VIKTOR; DIPL.-Ing.
DR. NATALIA REBRYMAN DIPL.-Chem.

RAINER VIKTOR, Dipl.-Ing.
DR. NATALIA BERRYMAN, Dipl.-Chem.
DR. JORGEN MEIER, Dipl.-Biol.
DR. STEFAN FICKERT, Dipl.-Chem.
DR. KATHARINA HAAS, Dipl.-Chem.

RECHTSANWÄLTE
HELGA TREMMEL
DR. JOHANN PITZ
BARBARA GUGGENMOS, DIpt.-Chem.
DR. THURE SCHUBERT
SIMONE SCHÄFER
JENNIFER CLAYTON-CHEN
DR. NIELS HÖLDER. LL.M.

EUROPEAN PATENT ATTORNEYS

DR. RENATE BARTH, Dipl.-Chem.

DR. URSULA ENGLBRECHT, Dipl.-Chem.

DR. PETER EINMARR. Dipl.-Chem.

DR. PETER EINMAYR, Dipl.-Chem. DR. OLAF MALEK, Dipl.-Biol.

BASEL OFFICE \*
EUROPEAN PATENT ATTORNEY
DR. WERNER BASTIAN, DIPL-BIOL

Partnerschaftsregister Amtsgericht München PR 89

EP-Patent Application 04 76 3974.5 Umicore AG & Co. KG Our Ref.: G5466 EP

COPY

Munich, March 8, 2006 WR/ISS

Reference is made to the telephone conversation with the undersigned of March 7, 2006.

We herewith enclose two Notifications of the recording of a change (Forms PCT/IB/306) wherein the persons Ralf Karch and Oliver Briel are mentioned as "the applicant" and "the inventor". However, they are inventors for all contracting states and applicants only for the USA. Therefore, it is requested to issue two corrected Notifications.

Di. Rudolf Weinberger European Patent Attorney

Enclosure:

As mentioned above

www.vossiusandpartner.com

		From the INTERNATIONAL BUREAU			
PCT	.To:.	То:			
NOTIFICATION OF THE RECORDING OF A CHANGE	vos	VOSSIUS & PARVOMERIUS & Partner			
(PCT Rule 92bis.1 and Administrative Instructions, Section 422)	8167	81675 Munich 0 6. Juni 2005 Germany			
Date of mailing (day/month/year) 27 May 2005 (27.05.2005)		Frist bearb.:	smt		
Applicant's or agent's file reference G5466 PCT		IMPORTANT NOTI	FICATION		
International application No. PCT/EP2004/008964	1	nal filing date (day/month/ye ugust 2004 (10.08.2004	· ·		
The following indications appeared on record concerning:      X the applicant     X the inventor	the agen	t the commo	n representative		
Name and Address		State of Nationality	State of Residence		
		Telephone No.			
		Facsimile No.			
	i	Teleprinter No.			
The International Bureau hereby notifies the applicant that the X     The person		change has been recorded of the nationality	concerning:		
Name and Address KARCH, Ralf Käthe-Kollwitz-Strasse 24 63801 Kleinostheim Germany		State of Nationality DE Telephone No.	State of Residence DE		
		Facsimile No.			
		Teleprinter No.			
3. Further observations, if necessary:					
4. A copy of this notification has been sent to:	:				
X the receiving Office	[	X the designated Offices	concerned		
the International Searching Authority		the elected Offices con	cerned ··················		
the International Preliminary Examining Authority	!	other:			
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized		CHAISE (Fax 338 8970		
Facsimile No. (41-22) 338.89.70	Telephone	No. (41-22) 338 8395			

Form PCT/IB/306 (March 1994)

006703864

		From the INTERNATIONAL BUREAU			
PCT	То:				
NOTIFICATION OF THE RECORDING OF A CHANGE  (PCT Rule 92bis.1 and Administrative Instructions, Section 422)	VOSSIUS & PARTNER Siebertstrasse 4 81675 Munich Germany		Use of the Post of	EN	
Date of mailing (day/month/year) 27 May 2005 (27.05.2005)				.	
Applicant's or agent's file reference G5466 PCT		IMPORTANT N	OTIFICATION	1	
International application No. PCT/EP2004/008964	l .	onal filing date (day/mor August 2004 (10.08.		] .	
The following indications appeared on record concerning:      X the applicant     X the inventor	the ager		mmon representative		
Name and Address	•	State of Nationality	State of Residence		
		Telephone No.		- - -	
		Teleprinter No.			
The International Bureau hereby notifies the applicant that the X the person the name the add		the nationality	the residence		
Name and Address  BRIEL, Oliver Tulpenhofstrasse 25 63067 Offenbach Germany		State of Nationality DE Telephone No.	State of Residence DE		
		Facsimile No.		1	
		Teleprinter No.		<u> </u>	
3. Further observations, if necessary:					
4. A copy of this notification has been sent to:  X the receiving Office the International Searching Authority the International Preliminary Examining Authority		X the designated Of the elected Office other:			
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 338 89 70	Authorized	•	'ILLECHAISE (Fax 338 897	0	

Form PCT/IB/306 (March 1994)

006703862

### **PCT**

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference G5466 PCT	FOR FURTHER ACTION	See item 4 below			
International application No. PCT/EP2004/008964	International filing date (day/month/year) 10 August 2004 (10.08.2004)	Priority date (day/month/year) 28 August 2003 (28.08.2003)			
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237					
Applicant UMICORE AG & CO. KG					

1.	<ol> <li>This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</li> </ol>				
2.	This REPORT consists of a total of 14 sheets, including this cover sheet.  In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.				
3.	This report contains indications	relating to the following items	:		
	Box No. I	Basis of the report			
	Box No. II	Priority			
	Box No. III	Non-establishment of opin applicability	ion with regard to novelty, inventive step and industrial		
	Box No. IV	Lack of unity of invention			
	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement			
	Box No. VI	Certain documents cited			
	Box No. VII	Box No. VII Certain defects in the international application			
	Box No. VIII	ox No. VIII Certain observations on the international application			
4.	<ol> <li>The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis.2).</li> </ol>				
			Date of issuance of this report 28 February 2006 (28.02.2006)		
	The International Bure 34, chemin des Col		Authorized officer		
	1211 Geneva 20, Sv		Agnes Wittmann-Regis		
Facsir	nile No. +41 22 740 14 35		Telephone No. +41 22 338 89 70		

REC'D 1 0 MAR 2005

INTERNATIONAL SEARCHING AUTHORITY

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of	mailing
---------	---------

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No. PCT/EP2004/008964

International filing date (day/month/year) 10.08.2004

Priority date (day/month/year)

28.08.2003

International Patent Classification (IPC) or both national classification and IPC B01J31/22, B01J37/30, C07F15/00

From the

**UMICORE AG & CO. KG** 

- This opinion contains indications relating to the following items:
  - Box No. 1

Basis of the opinion

- Box No. II
- ☑ Box No. III
- Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV
- ☑ Box No. V
- Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☑ Box No. VI
- Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:

**European Patent Office** D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d

Fax: +49 89 2399 - 4465

Authorized Officer

Goebel, M

Telephone No. +49 89 2399-8345



International application No. PCT/EP2004/008964

	Box N	o. I Basis of the opinion
1.	With re	gard to the <b>language</b> , this opinion has been established on the basis of the international application in guage in which it was filed, unless otherwise indicated under this item.
	laı	ils opinion has been established on the basis of a translation from the original language into the following nguage , which is the language of a translation furnished for the purposes of international search nder Rules 12.3 and 23.1(b)).
2.	With re	egard to any <b>nucleotide and/or amino acid sequence</b> disclosed in the international application and sary to the claimed invention, this opinion has been established on the basis of:
	a. type	of material:
		a sequence listing
		table(s) related to the sequence listing
	b. forn	nat of material:
		in written format
		in computer readable form
	c. time	e of filing/furnishing:
		contained in the international application as filed.
		filed together with the international application in computer readable form.
		furnished subsequently to this Authority for the purposes of search.
3	h C	n addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto as been filed or furnished, the required statements that the information in the subsequent or additional opies is identical to that in the application as filed or does not go beyond the application as filed, as ppropriate, were furnished.
4	. Additi	onal comments:

International application No. PCT/EP2004/008964

	Box	x No. II	Priority
1.		The fol	lowing document has not been furnished:
			copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).
			translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).
		Conse nevert	quently it has not been possible to consider the validity of the priority claim. This opinion has heless been established on the assumption that the relevant date is the claimed priority date.
2.		has be	pinion has been established as if no priority had been claimed due to the fact that the priority claim en found invalid (Rules 43 <i>bis</i> .1 and 64.1). Thus for the purposes of this opinion, the international ate indicated above is considered to be the relevant date.
3.	⊠	was no	not been possible to consider the validity of the priority claim because a copy of the priority document of available to the ISA at the time that the search was conducted (Rule 17.1). This opinion has heless been established on the assumption that the relevant date is the claimed priority date.
4.	Add	ditional d	observations, if necessary:

International application No. PCT/EP2004/008964

	No. III Non-establishment o licability	f opi	nion with regard to novelty, inventive step and industrial		
The	questions whether the claimed ious), or to be industrially applica	inven able i	ition appears to be novel, to involve an inventive step (to be non nave not been examined in respect of:		
	the entire international applicati	on,	·		
$\boxtimes$	claims Nos. 14-15 (part)				
bec	ause:				
	the said international application does not require an international	n, or al pre	the said claims Nos. relate to the following subject matter which liminary examination (specify):		
	the description, claims or drawi unclear that no meaningful opin	ngs (	indicate particular elements below) or said claims Nos. are so could be formed (specify):		
	the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.				
×	no international search report has been established for the whole application or for said claims Nos. 14-15 (part)				
	the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in And C of the Administrative Instructions in that:				
	the written form		has not been furnished		
			does not comply with the standard		
	the computer readable form		has not been furnished		
			does not comply with the standard		
	the tables related to the nucleo not comply with the technical re	tide a	and/or amino acid sequence listing, if in computer readable form only, do ements provided for in Annex C-bis of the Administrative Instructions.		
	See separate sheet for further	detai	ils		

International application No. PCT/EP2004/008964

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Yes: Claims

7-15

No: Claims

1-6

Inventive step (IS)

Yes: Claims

No: Claims

1-15

Industrial applicability (IA)

Yes: Claims No: Claims 1-15

2. Citations and explanations

see separate sheet

#### Box No. VI Certain documents cited

1. Certain published documents (Rules 43bis.1 and 70.10)

and/or

2. Non-written disclosures (Rules 43bis.1 and 70.9)

see form 210

### Box No. VIII Certain observations on the International application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

#### **Amendments:**

The amendments filed with your letter of 11.02.2003 cannot be accepted. They do not fulfil the requirements of Art. 19 or Art. 34 PCT. The former allows voluntary amendment of the claims after receipt of the International Search Report ("ISR"), while the latter allows voluntary amendment of claims/description and/or drawings during International Preliminary Examination under PCT Chapter II ("IPE"). Neither has any other basis in the PCT been invoked by the applicant.

A basis for the performed **voluntary** amendments is therefore **not found** in the PCT, since the ISR has not been issued yet. In the present stage of the international phase within PCT Chapter I **only corrections** of obvious errors may be made, **only after authorisation** by the competent PCT authority, cf. Rule 91 PCT. This is evidently **not the case** here.

Basis for this search opinion is therefore the application as originally filed.

### Non-establishment of Opinion:

- 1. Claim 14 relates to the generic use of the defined catalyst in *any* of an *a priori infinite amount of catalytic reactions*, which breadth is neither supported by the description, nor disclosed therein (Arts. 5 and 6 PCT). Support and disclosure is only given to the extent of the envisioned catalytic reactions in the description as the only elucidation in this respect (cf. page 8, last para. to page 9, para. 2). This non-compliance with the substantive provisions is to such an extent, that the search was performed taking into consideration the non-compliance in determining the extent of the search of claim 14 (cf. PCT Guidelines 9.19).
  - Therefore the search was restricted to the <u>use of the defined complexes as precursors</u> to, or actual, catalysts in catalytic hydrogenations of C-C, C-O, C-N or N-N double bonds, catalytic hydroformylation, hydrosilylation.
- 2. Claim 15 likewise relates to the generic use of the defined catalyst within any conceivable preparation method for any type of catalyst considerable as being heterogenous, irrespective of its final structure. Again, support and disclosure within the meaning of Articles 5 and 6 PCT is only given for a part of such methods (see page 9, para. 3). This non-compliance with the substantive provisions is to such an extent, that the search was performed taking into consideration the non-compliance in determining the extent of the

search of claim 15 (cf. PCT Guidelines 9.19).

Therefore the search was restricted to the use of the defined complexes for preparing heterogenous catalysts by immobilization of the soluble complex.

3. The parts of claims 14-15 which were not searched are not, and will not be, subject to International Preliminary Examination, irrespective of whether or not the claims are amended during any Chapter II procedure (cf. Rule 66.1(e) PCT).

#### Clarity:

Irrespective of the incomplete support of the claim (see preceding section), the subject-matter to be protected in claim 14 is also not clearly defined (Art. 6 PCT). The terminology "in catalytic reactions" leaves it open whether the defined complex is used (i) as the actual and exclusive catalyst to achieve a particular effect, i.e. catalysis of a given chemical reaction, or (ii) as a precursor for the preparation of the actual catalyst, including in situ preparation, which in turn is to perform a given catalytic reaction.

In view of the description on page 8, last para. to page 9, para. 1, and in contrast to the following paragraph commencing with "Furthermore ... complexes ... can be used", i.e. defining a further use, the above <u>interpretation (i)</u> appears to be applicable for the subject-matter to be protected by the claim and is <u>used for the present purposes</u>.

#### **Documents Cited:**

Reference is made to the following documents, cited in the international search report ("ISR"):

- **D1**: KOELLE, ULRICH ET AL: "Organometallic aqua complexes. Part 3. Olefin aqua complexes of rhodium(I)" CHEMISCHE BERICHTE, 128(9), 911-17 CODEN: CHBEAM; ISSN: 0009-2940, 1995, XP009044581
- **D2**: US-B1-6 291 606 (TANG BEN ZHONG ET AL) 18 September 2001 (2001-09-18)
- **D3**: WO 02/36261 A (IMPERIAL CHEMICAL INDUSTRIES PLC; HEMS, WILLIAM, PATRICK; HUTCHINGS, G) 10 May 2002 (2002-05-10)
- **D4**: BERGBREITER D E ET AL: "Amphoteric, Water-Soluble Polymer-Bound Hydrogenation Catalysts" TETRAHEDRON LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 38, no. 21, 26 May 1997 (1997-05-26),

PCT/EP2004/008964

- pages 3703-3706, XP004064015 ISSN: 0040-4039
- D5: BATS, JAN W. ET AL: "Low-temperature phase of diaqua(1,5-cycloocta-diene)rhodium(I) trifluoromethanesulfonate" ACTA CRYSTALLOGRAPHICA, SECTION E: STRUCTURE REPORTS ONLINE, E60(1), M85-M87 CODEN: ACSEBH; ISSN: 1600-5368,19 December 2003 (2003-12-19), XP002319626
- D6: HASHMI, A. STEPHEN K. ET AL: "On the enantioselective rhodium-catalyzed enyne cyclization" ADVANCED SYNTHESIS & CATALYSIS, 345(11), 1237-1241 CODEN: ASCAF7; ISSN: 1615-4150, 19 November 2003 (2003-11-19), XP002319627
- D7: MOTODA DAI ET EL: "Phosphane-Free Rhodium Catalyst in an Anionic Micellar System for [4+2] Annulation of Dienynes" ANGEWANDTE CHEMIE INTERNATIONAL EDITION, vol. 43, no. 14, 24 March 2004 (2004-03-24), pages 1860-1862, XP002319460

Documents **D1** and **D4** are also acknowledged in the application. Documents **D5-D7** are cited under **Rule 70.10 PCT**. Unless indicated otherwise, the **respective passages** cited with the individual documents in the ISR **apply** in assessing these documents in the individual sections below.

#### Novelty:

- 1.1 The subject-matter of claim 1 appears known form D1, which discloses [Rh(diene) (H<sub>2</sub>0)<sub>2</sub>]X (diene= cod, nbd; X= OTs, BF<sub>4</sub>, OTf, SbF<sub>6</sub>, known to be non-coordinating anions) as a species present in solution (d<sub>6</sub>-acetone, CD<sub>2</sub>Cl<sub>2</sub>, THF) and resulting from rapid primary precipitation with ether from acetone solutions, on the basis of <sup>1</sup>H and <sup>17</sup>O-NMR spectroscopic determinations (cf. pages 911-913). Hence D1 provides an enabling disclosure for making and separating the title compounds (cf. PCT Guidelines 12.02). In this respect, it is irrelevant that the compound was not obtainable in D1 in crystalline form, losing one of its H<sub>2</sub>O ligands upon attempted crystallisation from acetone-ether (cf. page 914), since this operation corresponds merely to a purification and claim 1 is not restricted to the purified, i.e. crystalline, compounds.
  - D1 is silent with respect to catalysis using these compounds or derivatives thereof.
- 1.2 Document D1 also anticipates the subject-matter of claims 2-6, dependent on claim 1.

- 1.3 Therefore, the present application does not meet the criterion set forth in Article 33(2) PCT, as the subject-matter of product claims **1-6** appears to be **not novel** (cf. Rule 64(1)-(3) PCT).
- 2.1 Either of documents **D1** or **D2** may be regarded as being the closest prior art to the subject-matter of claim **7**, which documents both disclose (cf. **D1**: page 911-912) the same process for preparing [Rh(diene)(H<sub>2</sub>0)<sub>2</sub>]X (D1, D2: diene= cod, nbd; D1: X= OTs,BF4,OTf,SbF6; D2: OTs) as primary product.

  The subject-matter of claim **7** differs from this known process in that the a separately prepared solution of the silver salt is added to the Rh(I)-diene compound in an aqueous solvent mixture, instead of a solid silver salt.
- 2.2 Document D2 may be regarded as being the closest prior art to the subject-matter of claim 14, as presently interpreted and examined (see section Non-establishment of Opinion), and discloses the use of the similar monoaqua complexes [Rh(diene) (H<sub>2</sub>0)]OTs in catalytic polymerizations of acetylenes.
  In view of the above examination restrictions, the subject-matter of claim 14 differs from this known use in that a different starting material, i.e. the corresponding bisaqua complexes [Rh(diene)(H<sub>2</sub>0)<sub>2</sub>]X, is used as catalyst in a different chemical reaction, i.e. hydrogenations of C-C, C-O, C-N or N-N double bonds, hydroformylation or hydrosilylation.
- 2.3 Either of documents **D3** (cf. ISR and page 2, lines 30-39; page 6, lines 2-13) or **D4** (cf. page 3704) may be regarded as being the closest prior art to the subject-matter of claim **15**, as examined (see section Non-establishment of Opinion). Both documents disclose the **preparation of heterogenous catalysts** using similar **soluble cationic (diene)Rh(I) precursors**, resulting in immobilized Rh(I) complexes for use in (asymmetric) hydrogenations. The soluble precursors are preferably [Rh(cod)<sub>2</sub>]BF<sub>4</sub> (**D3**) or [Rh(cod)]OTf (**D4**).
  - The subject-matter of claim 15 differs from both of these known preparation uses in specifying the presence of two water ligands in the otherwise same cationic (diene)Rh(I) precursor to be used, i.e.  $[Rh(diene)(H_20)_2]X$ .
- 2.4 The subject-matter of claims 7-15, as presently interpreted and examined (see section

# WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (SEPARATE SHEET)

International application No.

PCT/EP2004/008964

Non-establishment of Opinion), is therefore novel (Art. 33(2) PCT).

#### **Inventive Step:**

- Notwithstanding the objection of lack of novelty, the following further observations are made regarding inventive step, should the applicant in a later stage be able to delimit the subject-matter vs. the prior art.
- 2.1 The **problem to be solved** by the present invention, as set out in the present application on page 1, paras. 3-5 in conjunction with page 8, last para. to page 9, para. 3 may therefore be regarded as to provide cationic (diene)Rh(I) complexes for use as catalysts or precursors thereto, in particular catalytic hydrogenation of C-C, C-O, C-N or N-N double bonds, hydroformylation or hydrosilylation.
- 2.2 Since *no* experimental data is provided in the present application with respect to this use in catalysis and in view of the fact that a catalytic action is a priori not derivable from a chemical formula, it is at present not credible that this chemical problem is solved. Since the presence of an inventive step would depend on such a catalytic action as the effect of the compound claimed in claim 1 (and the thereupon dependent claims 2-6), this effect needs to be demonstrated. The same reasoning applies with respect to the use of these compounds according to claim 14 and the final catalyst products resulting from the catalyst preparation use according to claim 15. Otherwise the only problem recognizable as having been in fact solved would be the provision of further chemical compounds, which is devoid of inventive merit, since inherent to the chemist's customary practice (cf. Decision of the EPO Technical Boards of Appeal T 939/92).
- 2.3 Such an effect must be based on the disclosure of the original application, i.e. the *effect* must be demonstrated for the originally envisioned catalytic reactions (see section Non-establishment of Opinion).
  - The *same applies* if the argumentation of the applicant should be based on the achievement of a *surprising effect*, i.e. *later filed additional experiments cannot be used for this purpose*. Only for the verification of originally invoked effects may such further worked examples be used. The applicant's attention is drawn to established case law of the EPO Boards of Appeal in this respect, confirmed by the recent decision **G 1/03** of the

International application No.

PCT/EP2004/008964

EPO Enlarged Board of Appeal (see point 2.3.3 of the reasons therein). Hence the *effects* demonstrated in **D5-D7** (see section Certain Documents Cited) *may not be used*, since these are derived from a *different catalytic reaction*, (di)enyne cyclisations.

- 2.4 Since any inventive merit hinges on the compounds of claim 1, a process for preparing such compounds as claimed in claim 7 and the thereupon dependent claims 8-13, even if not foreshadowed by the prior art, will only involve an inventive step if these compounds, known or novel, serve a technical non-trivial purpose.
- 2.5 The present application does therefore not meet the criterion set forth in Article 33(3) PCT, as the subject-matter of claims 1-15 does **not** appear to involve an **inventive step**.
- 3. Should the applicant be able to overcome the fundamental deficiencies mentioned in items 2.2-2.3 above, his attention is drawn to the following brief evaluation of the content of documents **D1-D4** with respect to the presently claimed subject-matter.
- 3.1 Neither D1 nor D2 foreshadows the envisioned use of the claimed compounds according to claims 14 or 15, as presently interpreted and examined (see section Nonestablishment of Opinion).
- 3.2 For this reason, the **crystalline** compounds of claim 1 (= possible delimitation from **D1**) would also not be foreshadowed by **D1**.
- 3.3 The preparation process of claim 7 is not foreshadowed by D1 or D2.
- 3.4 With respect to the preparation use claimed in claim 15, the objective technical problem vis-à-vis D3 or D4 would be to provide an alternative preparation for heterogenous catalysts suitable for *inter alia* hydrogenation using likewise a cationic (diene)Rh(I) precursor.

As a mere alternative precursor comprised in the generic disclosure of D3 and in the absence of surprising effects, the use of the compounds of claim 1 in preparing heterogenous catalysts would be foreshadowed by the teaching of D3. This is all the more apparent in view of the same preference for the cod ligand in D3. Moreover the

skilled person, based on his common general knowledge, would a priori expect the members of the family of cationic (diene)Rh(I) compounds comprising further ligands of at most the same bonding strength (e.g. diene, solvent) to be interchangeably usable if only ligand exchange of these further ligands is concerned. The water ligand is known as a weak ligand, e.g. from D1, which additionally teaches that the  $H_2O$  ligands are labile and readily displaced by stronger ligands, e.g. phosphines (cf. pages 915-916) or tosylate in organic solvents upon slow crystallization.

Document **D4**, on the other hand, uses specifically the **same complex** but **devoid of complexed water**. In view of the arguments given with respect to **D3** and common general knowledge, the presently claimed bisaquo analogues are a **clear alternative** for the skilled person to the specifically used precursor in **D4**.

- 3.5 Should the applicant argue that the terminology "in catalytic reactions" in claim 14 includes the use of the defined complex as a precursor for the preparation of the actual catalyst, including in situ preparation, which in turn is to perform a given catalytic reaction, then D3 and D4 would be relevant for this claim as well, as detailed in the preceding item.
  - In case typical **homogenous** reactions with asymmetric ligands are concerned, **D3** is particularly relevant. It discloses a broad range of ligands for use with the preferred cationic (diene)Rh(I) precursors by ligand exchange (cf. page 3, line 2 to page 4, line 5; page 6, lines 2-13). Although only the immobilized catalyst complexes are exemplified, it is common general knowledge that their homogenous congeners are likewise catalytically active (this obviously being a prerequisite for heterogenization attempts), albeit possibly with different results. It is also common general knowledge that the disclosed ligand exchange on the heterogenized precusors may be performed in the same way with the corresponding homogenous precursors. **D3** would thus **foreshadow** such subject-matter, in view of the arguments given with respect to **D3** and common general knowledge in item 3.4 above.
- 3.6 In view of items 3.4 and 3.5, if the only effect of the compounds claimed in claim 1 and the thereupon dependent claims 2-6 resides in their general suitability as catalyst precursors, absent of surprising effects, then these could only be considered as alternatives foreshadowed by D3 or D4 and common general knowledge or by either of D3 or D4 in combination with D1 and common general knowledge.

# WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (SEPARATE SHEET)

International application No.

PCT/EP2004/008964

### **Certain Documents Cited:**

- Documents D5-D6, both by the present inventors, disclose the exact same complexes
  as presently claimed, in crystalline form, made by the same process (referring to the
  priority document of the present application). The complexes are used in enyne
  cyclisations. Heterogenous systems are not disclosed.
  In view of the above examination restrictions, the subject-matter of claims 1-13 of the
  present application is disclosed by these documents.
- 2. Document D7 discloses a catalyst system for *dienyne cyclisations*. The system is generated by reaction of SDS and [(Rh(diene)Cl)<sub>2</sub>] in water (diene= cod, nbd), in the *absence of Ag salts*, and formulated as [Rh(diene)(H<sub>2</sub>O)<sub>n</sub>]SDS, wherein SDS associates into a micellar structure, i.e. a polyvalent non-coordinating anion. A value for "n" is *not specified*, nor are the *catalytically active species separated*. D7 further teaches the great technical significance of cationic Rh catalysts for catalytic (asymmetric) hydrogenation, hydrosilylation, referring to a technical encyclopedia.
- 3. Although **D5-D6** would be novelty destroying for the mentioned claims and **D7** would be relevant for inventive step for at least claim 1, these documents are not considered as state of the art within the PCT procedure under the **assumption that the priority claimed in the present application is valid**.
- 4. In the regional phase before the EPO, however, these documents will be considered as state of the art under Art. 54(2) EPC if the priority date cannot be validly claimed.



Vossius & Partner · POB 86 07 67 · 81634 Munich · Germany

European Patent Office

MUNICH

PATENTANWALTE **EUROPEAN PATENT ATTORNEYS EUROPEAN TRADEMARK ATTORNEYS** 

DR. VOLKER VOSSIUS, Dipl.-Chem. (bis 1992; danach in anderer Kanzlei) DR. PAUL TAUCHNER, Dipl.-Chem. DR. DIETER HEUNEMANN, Dipl.-Phys. DR. PETER A. RAUH, Dipl.-Chem. DR. GERHARD HERMANN, Dipl.-Phys. JOSEF SCHMIDT, Dipl.-Ing. DR. HANS-RAINER JAENICHEN, DIPL-BIOL DR. ALEXA V. UEXKÜLL, M.Sc. DR. RUDOLF WEINBERGER, Dipl.-Chem. AXEL STELLBRINK, Olpi.-ing.
DR. JOACHIM WACHENFELD, Biol. DR. FRIEDERIKE STOLZENBURG, DIPL-Biol. RAINER VIKTOR, Dipl. Ing. DR. NATALIA BERRYMAN, Dipl.-Chem.

DR. JÜRGEN MEIER, Dipl.-Biol. DR. STEFAN FICKERT, Dipt.-Chem DR. KATHARINA HAAS, Dipl.-Chem. EPO - Munich 2 3. März 2006

RECHTSANWALTE

HELGA TREMMEL DR. JOHANN PITZ BARBARA GUGGENMOS, Dipl.-Chem. DR. THURF SCHUBERT SIMONE SCHÄFER JENNIFER CLAYTON-CHEN DR. NIELS HOLDER, IL.M.

**EUROPEAN PATENT ATTORNEYS** 

DR. RENATE BARTH, Dipl.-Chem DR. URSULA ENGLBRECHT, Dipl.-Chem. DR. PETER EINMAYR, Dipl.-Chem. DR. OLAF MALEK, Dipl.-Biol.

BASEL OFFICE \* **EUROPEAN PATENT ATTORNEY** DR. WERNER BASTIAN, Dipl. Biol.

Partnerschaftsregister Amtsgericht München PR 89

04 76 3974.5 Umicore AG & Co. KG Our Ref.: G5466 EP

Munich, March 23, 2006 WR/RA/ISS

Further to our petition dated March 8, 2006 in the above-identified patent application, we herewith enclose two corrected Notifications of the Recording of a Change issued by the International Bureau of WIPO.

**European Patent Attorney** 

Enclosure:

As mentioned above

PCT/EP2004/008964

TATENT COOPE	NA HOI	I INEA US		
		レング	<b>5</b> ~	
DOT	F	he INTERNATIONAL B	USEAU	
PCT	To:	`~	かじメ	
NOTIFICATION OF THE RECORDING		, (		_
NOTIFICATION OF THE RECORDING OF A CHANGE	\ \v_00	CUIC O DANTAREDO M	-UA-S/	C
	VUS Sieb	SIUS & PARTINERG E	GAKKEN	1
(PCT Rule 92bis.1 and Administrative Instructions, Section 422)		75 Munich	s & Parmer	l
Administrative instructions, Section 422)	Geri	many 21.	Mērz 2005	
Date of mailing (day/month/year)	7	Frist		
16 March 2006 (16.03.2006)			afr	
Applicant's or agent's file reference		IMPORTANT NOT	IEIGATION	
G5466 PCT		IMPORTANT NOT	IFICATION	
International application No.	Internation	onal filing date (day/month/y	ear)	_
PCT/EP2004/008964	10 A	August 2004 (10.08.200	14)	
The following indications appeared on record concerning:				_
X the applicant X the inventor	the age	nt the comm	on representative	
Name and Address		State of Nationality	State of Residence	
Trume and reduces		,		
		Telephone No.		
·		Facsimile No.		
		Teleprinter No.		
2. The International Bureau hereby notifies the applicant that t	he following	change has been recorded	concerning:	_
the person the name the add	dress	the nationality	the residence	
Name and Address		State of Nationality	State of Residence	
KARCH, Raif		DE	DE	
Käthe-Kollwitz-Strasse 24 63801 Kleinostheim		Telephone No.		
Germany		Facsimile No.	· · · · · · · · · · · · · · · · · · ·	
	•	racsimile No.		
		Teleprinter No.		
3. Further observations, if necessary:				_
The person identified in Box 2 has been recorde America only and inventor for all designated Sta	id as appli ates.	cant for the United Sta	ites of	
4. A copy of this notification has been sent to:		_		
X the receiving Office	ļ	X the designated Offices	concerned	
the International Searching Authority	ļ	the elected Offices con	cerned	
the International Preliminary Examining Authority		other:		
The land of the la	Authorized	officer		
The International Bureau of WIPO 34, chemin des Colombettes		Patrick VILLE	CHAISE (Fax 338 8	970
1211 Geneva 20, Switzerland	Talasti	No. 441 221 229 9205	,	

PCT/EP2004/008964

PATENT COOPERATION TREAT

	From the INTERNATIONAL BURLAN		
PCT	то:		
NOTIFICATION OF THE RECORDING OF A CHANGE  (PCT Rule 92bis.1 and Administrative Instructions, Section 422)	VOSSIUS & PARTNERsius & Partle Siebertstrasse 4 81675 Munich 2 1. März 2008 Germany		
Date of mailing (day/month/year)  16 March 2006 (16.03.2006)	bearb.:		
Applicant's or agent's file reference G5466 PCT	IMPORTANT NOTIFICATION		
International application No. PCT/EP2004/008964	International filing date (day/month/year) 10 August 2004 (10.08.2004)		
The following indications appeared on record concerning:      X the applicant     X the inventor	the agent the common representative		
Name and Address	State of Nationality State of Residence		
	Telephone No.		
·	Facsimile No.		
	Teleprinter No.		
2. The International Bureau hereby notifies the applicant that the X the person the name the add			
	State of Nationality   State of Residence		
Name and Address BRIEL, Oliver	DE DE DE		
Tulpenhofstrasse 25 63067 Offenbach Germany	Telephone No.		
<b>C</b> 55.,	Facsimile No.		
	Teleprinter No.		
3. Further observations, if necessary: The person identified in Box 2 has been recorded as applicant for the United States of America only and inventor for all designated States.			
4. A copy of this notification has been sent to:			
X the receiving Office	X the designated Offices concerned		
the International Searching Authority	the elected Offices concerned		
the International Preliminary Examining Authority	other:		
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Patrick VILLECHAISE (Fax 338 8970		
Facsimile No. (41,22) 339 90 70	Telephone No. (41-22) 338 8305		

31

	From the INTERNATIONAL BUREAU		
PCT	То:		
NOTIFICATION OF THE RECORDING OF A CHANGE  (PCT Rule 92bis.1 and Administrative Instructions, Section 422)  Date of mailing (day/month/year) 16 March 2006 (16.03.2006)	VOSSIUS & PARTNER Siebertstrasse 4 81675 Munich Germany		
Applicant's or agent's file reference G5466 PCT	IMPORTANT NOTIFICATION		
International application No. PCT/EP2004/008964	International filing date (day/month/year) 10 August 2004 (10.08.2004)		
The following indications appeared on record concerning:      X the applicant     X the inventor	the agent the common representative		
Name and Address	State of Nationality State of Residence	ᅦ	
	Telephone No.  Facsimile No.  Teleprinter No.		
2. The International Bureau hereby notifies the applicant that t	the following change has been recorded concerning:	╡	
X the person the name the add			
Name and Address  BRIEL, Oliver Tulpenhofstrasse 25 63067 Offenbach Germany  2 8 03 20			
, TEAM 14		_	
3. Further observations, if necessary: The person identified in Box 2 has been recorded as applicant for the United States of America only and inventor for all designated States.			
4. A copy of this notification has been sent to:		╗	
X the receiving Office	X the designated Offices concerned		
the International Searching Authority	the elected Offices concerned		
the International Preliminary Examining Authority	other:	╝	
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 338.89.70	Authorized officer  Patrick VILLECHAISE (Fax 338 89)	70	
, 500 170. 171. EL/ 500.03.70	Telephone No. (41-22) 338 8395		